REMARKS/ARGUMENTS

This is in response to the official action dated March 23, 2006. Reconsideration is respectfully requested.

Claims 1-7 and 10 were rejected, claims 8 and 9 were objected to but allowable if rewritten in independent form.

Claim Rejection under 35 USC § 101

Claims 1-6 are rejected as being directed to non- statutory subject matter. The rejection is respectfully traversed. Claim 1 is directed to a method for checking whether an input data record is in a working range of a neural network. The working range is defined by the convex envelope formed by the training input data records of the neural network. This method provides a steps for checking if certain input parameters are in an acceptable range from the training data, that is if the input parameters are within the working range of the neural network.

The phrase "wherein working range is defined by the convex envelope formed by the training input data records of the neural network" is disclosed in [0017].

Applicants have amended the claim 1 by adding to step (b) and step (c). Also, applicants have and adding claims 11 and 12 including alternate steps (b) and step (c) . Support is found in Fig. 1, Fig. 3, Fig. 5 and descriptions thereof in the specification.

The output of the method of the invention is whether x is inside or outside the convex envelope which is supported by Fig. 1 and description provided in [0069]-[0070], Fig. 3 and Fig. 5. Applicants submit that a neural network is an information processing device that utilizes a very large number of simple modules and in which information is stored by components that at the same time effect connections between these modules. (see also McGraw-Hill, Dictionary of Scientific and Technical Terms, 5th Edition). Before a neural network can be used for predictive or optimization process it must be trained. Known methods for training of neural networks are disclosed page 1 of the specification. The reliability of the result prediction strongly depends on the training data; the closer input data are to the training data, the higher is

the reliability of the result prediction.

As stated in **MPEP §2106 E**: "Office personnel have the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101. Compare *Musgrave*, 431 F.2d at 893, 167 USPQ at 289; *In re Foster*, 438 F.2d 1011, 1013, 169 USPQ 99, 101 (CCPA 1971). Further, when such a rejection is made, Office personnel must expressly state how the language of the claims has been interpreted to support the rejection. However, to further accommodate the understanding of the claim, Applicants have amended claim 1 and similarly has drafted claims 11 and 12. Applicant therefore submits that the claimed method is directed to statutory subject matter.

Claim rejection under 35 USC § 102

Claims 1-7 are rejected as being anticipated by Courrieu. For anticipation, a reference must teach each and every limitation of the claimed invention. Applicants submit that Courrieu teaches a method for checking whether an input data record is in a working range of neural network comprising three relative simple algorithmic solutions:

Whether

(1) the first algorithm is a standard algorithm to calculate exteriority of a point to a convex hull polytope. The described algorithm is limited to a maximal number of 1000 learning points distributed in a working space of maximum 10 dimensions;

(2) the second algorithm approximates the convex hull polytope using a four-layer architecture and three processing layers;

(3) the third algorithm also approximates the convex hull polytope calculating the polytope's circumscribed sphere ignoring that for example the training data range in some dimensions may be narrow and the convex hull therefore closer to an egg than to a sphere.

Thus, Courrieu's methods only provide likeliness results on whether the input data is within or outside the real convex hull. This is because both second and third algorithms only approximate the convex hull and do not lead to an exact definition of the convex hull.

In contrast, Applicants invention concerns checking whether the input parameters are in an acceptable range from the training data, in other words, whether the input parameters are within the working range of the neural network.

Accordingly, Applicants claims as submitted herewith are not anticipated by the Courrieu reference.

Claim rejection under 35 USC § 103

The Examiner rejected claim 10 as obvious over Courrieu in view of Wennmyr.

Claim 10 is incorporating independent claim 1, which has been amended to further define the invention, as discussed above in the context of the discussion of the Courrieu reference. Applicants pointed out that Courrieu only provides both second and third algorithms which only approximate the convex hull and which do not lead to an exact definition of the convex hull and thus, only give likeliness results regarding whether the input data is within or outside the real convex hull.

Wennmyr does not cure this deficiency. Wennmyr describes a method for training a neural network based on an algorithm for the calculation of a convex hull applicable in two and three dimensions (Abstract, line 2), whereby the method recalculates the convex hull when a new training data point is introduced. Wennmyr does not teach that this algorithm may be applicable for higher dimensional spaces.

It is a requirement in the presently claimed method of the present invention that the check can be also carried out when using highly dimensional working spaces comprising a large amount of non-collinear points generally until 10.000 points and from 1 to 20 dimensions, calculation time being short and memory requirements being compatible with commercially available computer so that a large amount of input data can be checked out in a reasonable time.

This was achieved by forming an convex envelope by means of the training input data records, checking whether the input data is in the convex envelope, said convex envelope being exactly defined and checking step being performed using one of the three described method A) based on forming a simplex or B) based on building a hyper-plane or C) based on selecting an initial vector and a matrix, output of the method being a 100% reliable yes/no answer.

Accordingly, Wennmyr fails to teach or suggest the subject matter missing from the Courrieu

reference.

Claims 1-12 are therefore patentable over Courrieu and Wennmyr taken either alone or in combination.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If entry and consideration of the amendments above requires an extension of time, Applicants respectfully request that this be considered a petition therefor. The Assistant Commissioner is authorized to charge any fee(s) due in this connection to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,
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